

Geodetic Reference Instrument Transponder for Small Satellites (GRITSS)

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Abstract The accuracy of the Terrestrial Reference Frame is limited by systematic errors in tying the contributions from the different geodetic techniques. Local survey uncertainties are limited due to the inaccessibility of the instrument reference points. NASA is implementing a technology demonstration mission called *Geodetic Reference Instrument Transponder for Small Satellites* (GRITSS) that uses a small satellite as a space-based reference point for tying together collocated geodetic stations. The technology being demonstrated uses a novel idea of upconverting the Global Positioning System (GPS) signals received at the satellite and transponding them to a VLBI Global Observing System (VGOS) antenna ground station. This approach does not require the satellite to be in view of more than one VLBI station at a time, allowing the use of Low Earth Orbits and an inexpensive CubeSat. The demonstration will initially involve only the NASA VGOS stations in Maryland, Hawaii, and Texas, but may be expanded later in the mission to include other international VGOS stations. This presentation will provide an overview of the GRITSS mission and the measurement concept.

Session-6: Extending the Use of VLBI to Frame Ties, Deep Space Exploration and Other Areas

Preferred presentation type: Invited / Oral

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